

Remarks

Further and favorable reconsideration is respectfully requested in view of the foregoing amendments and following remarks.

Initially, in connection with the restriction requirement, as required by the Examiner Applicants hereby affirm their election of claims 1-8 with traverse. This election is made while reserving Applicants' right under 35 U.S.C. §121 to file a divisional application for the non-elected subject matter of claims 9-11.

Claim 1 has been amended to incorporate the subject matter of claims 4 and 5, and claim 12 has been amended to incorporate the subject matter of claims 15 and 16, as a result of which claims 4, 5, 15 and 16 have been cancelled.

The patentability of the present invention as claimed over the disclosures of the references relied upon by the Examiner in rejecting the claims will be apparent upon consideration of the following remarks.

Initially, the rejection of claims 1-4, 6-8, 12-15 and 17-19 under 35 U.S.C. §102(b) as being anticipated by Shinjou et al. has been rendered moot. That is, this rejection does not include either claim 5 which has been incorporated into claim 1, or claim 16 which has been incorporated into claim 12, it being noted that claims 1 and 12 are the only independent claims in the application.

Similarly, the rejection of claims 1-3, 6 and 7 under 36 U.S.C. §102(b) or 35 U.S.C. §103(a) based on Goettmann has been rendered moot, since this rejection does not include either claim 4 or claim 5, both of which have been incorporated into claim 1.

The rejection of claims 5 and 16 under 35 U.S.C. §103(a) as being unpatentable over Shinjou et al. is respectfully traversed.

An important characteristic of a semipermeable membrane support is that it be capable of adhesively bonding to a semipermeable membrane in a firm manner. To achieve this, the non-woven fabric needs many pores to be formed thereon to infiltrate polymer casting solution (semipermeable membrane liquid) therein. This is because the semipermeable membrane is bonded to a non-woven fabric well by anchor effect as indicated in the paragraph bridging pages 3 and 4 of the present specification. If many pores were formed on the semipermeable membrane support, then air

permeability would be affected, i.e. increased. In order to provide many pores while preventing this increase to keep air permeability constant, the pore size should be small. To make pore size small while maintaining fixed air permeability, thinner fiber can be employed. However, a non-woven fabric made of thin flexible fiber easily curls. Making a thin fiber non-woven fabric thick deteriorates its air permeability.

To solve these problems, the present invention achieves superior property as a semipermeable membrane support by unique construction while preventing curling. Air permeability and pore size are associated with each other. It is possible to improve adhesive strength between the semipermeable membrane and the semipermeable membrane support by making pore size small while keeping air permeability at a desirable constant value. This is because if pore size is smaller while air permeability is constant, small innumerable pores can be formed. The semipermeable membrane support made of a non-woven fabric having small innumerable pores firmly adheres to a semipermeable membrane by anchor effect, i.e. infiltration of polymer casting solution into innumerable pores of the semipermeable membrane support.

There is no suggestion in the Shinjou et al. reference concerning the pore size of the non-woven fabric to which the present invention has now been limited, or the advantageous effects of employing a non-woven fabric with the claimed pore size as discussed above.

The Examiner takes the position that Shinjou et al. teaches all parameters of the non-woven such as material, fiber decitex, tensile strengths, and air permeability as taught by the instant application, except the porosity of the membrane as being between 5 and 15 microns. The Examiner further takes the position that it would be obvious to one of ordinary skill in the art that since the non-woven fabric of this reference has materials and properties similar to the instant invention, and is made by similar methods, the pore size also would be similar.

However, Applicants respectfully disagree with this conclusion that the pore size also would be similar, since pore size can be adjusted independently of the materials, properties and production methods. That is, even if the present invention employs the same materials, properties and production methods as in Shinjou et al., this would not necessarily lead to similar pore size. For example, the air permeability recited in Shinjou et al. can be achieved by fewer larger pores or a greater number

of smaller pores, regardless of the materials and production methods employed. Accordingly, the art-skilled would not predict, with any reasonable certainty, that the pore size of the non-woven fabric employed in the present invention is the same as or similar to the pore size in Shinjou et al., which as recognized by the Examiner is not taught by the reference.

In the Examiner's response to Applicants' previous patentability arguments, the Examiner criticizes the exhibits submitted with Applicants' previous response. In response to this, please see the attached modified exhibits, in the form of a Report, which has been verified by one of the present inventors.

The Examiner states that the previously submitted experiment is not "independently verified." Does the Examiner mean that the experiment must be verified by someone who is not an inventor? If so, Applicants respectfully submit that there is no requirement for such independent verification. The PTO routinely accepts verified statements submitted by the inventors, and the Examiner has offered no reason to dismiss a verified statement simply because it has been made by one of the inventors.

The Examiner also criticizes the previous experiment because it does not address other factors that contribute towards curling of the web during membrane coating. Please note that the attached verified Report addresses other factors, such as permeability of the web and web thickness.

Although the Examiner listed other factors such as "degree of penetration of coating solution into the web" and "stiffness," practically speaking it is very difficult to measure "degree of penetration of coating solution into the web", which varies depending on casting condition, such as density, angle, time from casting to infiltration into water. Regarding "stiffness", it is also hard to measure, because the thickness of a single sheet is very thin. It might be possible to measure its softness if many sheets were stacked up. But Applicants believe the stiffness is illustrated by the photographs in the Report, showing a tendency not to curl after casting is applied.

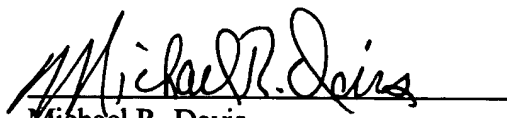
For these reasons, Applicants take the position that the presently claimed invention is patentable over the applied references.

Therefore, in view of the foregoing amendments and remarks, it is submitted that each of the grounds of rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

Respectfully submitted,

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By:

A handwritten signature in cursive script, appearing to read "Michael R. Davis", is written over a horizontal line.

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